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EXAMINER	
WINKLER, MELISSA A	

ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/518,448	BERNARD ET AL.	
	Examiner	Art Unit	
	MELISSA WINKLER	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *31-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *31-54* is/are rejected.

7)☒ Claim(s) *49-54* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 49 and 53 are objected to because of the following informalities: for clarity, it is suggested the claims are amended to read the composition or process "further comprising an additive selected from the group consisting of a pore-forming agent, a nucleating agent...."

Claims 50 – 54 are objected to because of the following informalities: Claim 50 depends upon canceled Claim 21. For the purposes of further examination, Claim 50 will be presumed to depend upon Claim 31. However, appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 48 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent Claim 31 sets forth B and C as two distinct compounds. Consequently, it is unclear what is intended by the limitation that

compound C is polyamide B in dependent Claim 48. For the purposes of further examination, compound C in Claim 48 will be interpreted as a compound having atleast one acid function, as set forth in Claim 31. However, appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 31, 39 – 43, 47 – 51, and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,374,976 to Blount.

Regarding Claims 31, 39, and 48. Blount teaches a foamable/expandable composition comprising a polyamide and a polyisocyanate (Column 7, Lines 46 – 49). Organic polyhydroxyl compounds, preferably carboxylic acids, may also be used in conjunction with the polyisocyanate (Column 8, Line 49 – Column 9, Line 19).

Regarding Claims 40 and 41. Blount teaches the composition of Claim 39 wherein the polyisocyanate may be 2,6-toluene diisocyanate (Column 8, Lines 20 - 22).

Regarding Claim 42. Blount teaches the composition of Claim 39 wherein the polyisocyanate may be comprised of isocyanurate groups (Column 8, Lines 20 - 22).

Regarding Claim 43. Blount teaches the composition of Claim 31 wherein the polyisocyanate may be 2,6-toluene diisocyanate (Column 8, Lines 20 - 22).

Regarding Claim 47. Blount teaches the composition of Claim 31 wherein the organic polyhydroxyl compound may be adipic acid (Column 9, Lines 7 - 10).

Regarding Claim 49. Blount teaches the composition of Claim 31 may further comprise a surfactant (Column 13, Lines 60 - 62).

Regarding Claim 50. Blount teach a process for preparing a polyamide foam from the composition of Claim 31. The components of the composition are mixed and reacted at a temperature preferably in the range of 20 to 160°C (Column 15, Lines 50 – 52). After the reaction, the mixture is allowed to solidify/stabilize and foam into a cellular solid product outside the mixing apparatus (Column 15, Lines 44 - 50).

Regarding Claim 51. Blount teach the process of Claim 50 wherein the polyamide forms part of a liquid emulsion when heated to 60°C and, as indicated above, the polyamide may be reacted at a temperature preferably in the range of 20 to 160°C (Example 8 and Column 15, Lines 50 – 52).

Regarding Claim 53. Blount teaches the process of Claim 50 wherein a reinforcing filler, such as glass or wood, may be added to the foaming reaction mixture (Column 14, Lines 60 - 62).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,374,976 to Blount, as applied to Claim 31 above, and further in view of US 5,760,147 to Schönfeld et al.

Regarding Claims 32 and 34. Blount teaches the composition of Claim 31 but is silent regarding the linearity and molecular mass of the polyamide. However, Schönfeld et al. also teaches a polyamide foam prepared from a polyamide that is preferably linear and with a molecular weight of 5,000 to 70,000 (Column 1, Lines 22 - 45). Blount and Schönfeld et al. are analogous art as they are from the same field of endeavor, namely foam compositions containing polyamide useful, for example, as insulation. At the time of invention, it would have been obvious to a person of ordinary

skill in the art to use a linear polyamide with a molecular weight in the range taught by Schönfeld et al. in the composition taught by Blount. The motivation would have been that these polyamides are useful preparing foams serving as heat-resistant insulation (Column 3, Lines 32 – 33).

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,374,976 to Blount, as applied to Claim 31 above, and further in view of US 5,891,563 to Letts.

Regarding Claim 33. Blount teaches the composition of Claim 31 but does not teach the polyamide is one of the claimed polyamides. However, Letts teaches a polymer material containing a polyamide that is preferably polyamide 6,6. Blount and Letts are analogous art as they are from the same field of endeavor, namely foam compositions containing polyamide useful, for example, as insulation. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use polyamide 6,6 in the composition taught by Blount. The motivation would have been that that polyamide 6,6 has properties that would be desirable in an insulation foam, such as low air permeability and moisture resistance (Letts: Column 5, Lines 31 – 34).

Claims 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,374,976 to Blount, as applied to Claim 31 above, and further in view of US 5,959,069 to Glück et al.

Regarding Claims 35 and 37. Blount teaches the composition of Claim 31 but does not teach the polyamide is comprised of H-shaped macromolecular chains. However, Glück et al. teach a molding composition comprising H-shaped polyamides (Column 1, Lines 3 – 5). Blount and Glück et al. are analogous art as they are from the same field of endeavor, namely molding compositions comprising polyamides. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use an H-shaped polyamide as the polyamide in the composition taught by Blount. The motivation would have been that H-shaped polyamides have very good flowability under conditions of shear melt, as well as good mechanical strength (Glück et al.: Column 2, Lines 10 – 15).

Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,374,976 to Blount, as applied to Claim 31 above, and further in view of WO 99/03909 to Di Silvestro et al. For convenience, citations for WO 99/03909 are taken from the English-language equivalent of this document, US 6,867,256 to Di Silvestro et al.

Regarding Claims 36 and 37. Blount teaches the composition of Claim 31 but does not teach the polyamide is a copolyamide with a random arborescent structure. However, Di Silvestro et al. teach a molding composition comprising a polyamide with a random tree-type structure (Column 1, Line 30 – Column 2, Line 50). Blount and Di Silvestro et al. are analogous art as they are from the same field of endeavor, namely molding compositions comprising polyamides. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use a copolyamide with a tree-like structure as the polyamide in the composition taught by Di Silvestro et al. The motivation would have been that these copolyamides are easily prepared and have a high melt viscosity (Di Silvestro et al.: Column 1, Lines 24 – 26).

Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,374,976 to Blount, as applied to Claim 31 above, and further in view of WO 00/68298 to Bouquerel et al. For convenience, citations for WO 00/68298 are taken from the English-language equivalent of this document, US 6,872,800 to Bouquerel et al.

Regarding Claim 38. Blount teaches the composition of Claim 31 but does not teach the polyamide is a hyperbranched copolyamide. However, Bouquerel et al. teach a composition comprising a hyperbranched copolyamide. Blount and Bouquerel et al. are analogous art as they are from the same field of endeavor, namely compositions

comprising polyamides. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use a hyperbranched copolyamide as the polyamide in the composition taught by Blount. The motivation would have been that the globular structure of hyperbranched polymers gives them a lower viscosity in the molten state than that of linear polymers with the same molecular weight (Bouquerel et al. Column 1, Lines 24 – 29).

Claims 44 - 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,374,976 to Blount, as applied to Claim 31 above, and further in view of US 5,817,425 to Morishige et al.

Regarding Claims 44 and 45. Blount teaches the composition of Claim 31 but does not teach the isocyanate is protected with a protecting group. However, Morishige et al. teach a polyamide film onto atleast one side is applied an adhesiveness-improving layer containing a cross-linking agent that may be a blocked isocyanate compound (Column 11, Lines 41 - 65). Specifically, the isocyanate may be blocked with ε-caprolactam (Column 12, Lines 54 – 66). Blount and Morishige et al. are analogous art as they are from the same field of endeavor, namely compositions comprising polyamide and isocyanate. At the time of invention, it would have been obvious to a person of ordinary skill in the art to prepare the composition taught by Blount with an

isocyanate blocked with ε-caprolactam. The motivation would have been that the blocked isocyanate provides advantages such as promoting cross-linking in the foam (Morishige et al: Column 11, Lines 56 - 66).

Regarding Claims 46. Blount teaches the composition of Claim 44 wherein the polyamide forms part of a liquid emulsion when heated to 60°C and, as indicated above, the polyamide may be reacted at a temperature preferably in the range of 20 to 160°C (Example 8 and Column 15, Lines 50 – 52).

Blount, in view of Morishige et al, are silent regarding the deprotection temperature of the isocyanate functions. Consequently, the Office recognizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredient(s), i.e. a polyamide and isocyanate capped with caprolactam. Therefore, the claimed effects and physical properties, i.e. a deprotection temperature of the isocyanate functions greater than the melting point or softening point of polyamide B, would implicitly be achieved by a composition with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,374,976 to Blount, as applied to Claims 31 and 50 above, and further in view of US 5,817,425 to Morishige et al.

Regarding Claim 52. Blount teaches the process of Claim 50 but does not teach the isocyanate is protected with a protecting group. However, Morishige et al. teach a polyamide film onto atleast one side is applied an adhesiveness-improving layer containing a cross-linking agent that may be a blocked isocyanate compound (Column 11, Lines 41 - 65). Specifically, the isocyanate may be blocked with ε-caprolactam (Column 12, Lines 54 – 66). Blount and Morishige et al. are analogous art as they are from the same field of endeavor, namely compositions comprising polyamide and isocyanate. At the time of invention, it would have been obvious to a person of ordinary skill in the art to prepare the composition taught by Blount with an isocyanate blocked with ε-caprolactam. The motivation would have been that the blocked isocyanate provides advantages such as promoting cross-linking in the foam (Morishige et al: Column 11, Lines 56 - 66).

Blount teaches the reaction of the composition occurs at a temperature preferably in the range of 20 to 160°C (Example 8 and Column 15, Lines 50 – 52). However, Blount, in view of Morishige et al, are silent regarding the deprotection temperature of the isocyanate functions. Consequently, the Office recognizes that all of the claimed effects

or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredient(s), i.e. a polyamide and isocyanate capped with caprolactam. Therefore, the claimed effects and physical properties, i.e. a deprotection temperature of the isocyanate functions greater than the melting point or softening point of polyamide B, would implicitly be achieved by a composition with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,374,976 to Blount, as applied to Claims 31 and 50 above, and further in view of US 4,028,287 to Sato et al.

Regarding Claim 54. Blount teaches the process of Claim 50 but is silent regarding the density of the foam product. However, Sato et al. teach a polyamide foam prepared with a density ranging from 0.038 to 0.368 g/cm^3 (Column 8, Line 46 – Column 9, Line 15). Sato et al. also state that the amount of blowing agent/foaming agent can be modified to achieve a desired density in the foam (Column 4, Lines 60 -

62). Blount and Sato et al. are analogous art as they are from the same field of endeavor, namely polyamide foams. At the time of invention, it would have been obvious to a person of ordinary skill in the art to prepare the foam taught by Blount at a density in the range taught by Sato et al. The motivation would have been that a foam density in this range would be low enough to be useful in commercial applications, such as insulation.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MELISSA WINKLER whose telephone number is (571)270-3305. The examiner can normally be reached on Monday - Friday 7:30AM - 5PM E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571)272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/ MW
Supervisory Patent Examiner, Art Unit 1796 March 7, 2008
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